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Growing up on the spectrum: How High-functioning Young Adults with Autism Transition to Independence

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Abstract

Adolescents with high-functioning autism spectrum disorder do not learn the self-determination and communication skills or receive the planning support during high school that they need to transition successfully into adulthood. As a result, this population has the worst employment outcomes of any group with disabilities, despite having a high potential to succeed in postsecondary occupations. The unique challenges faced by high-functioning individuals, especially communication deficits, hinder them from succeeding in postsecondary ventures. Research has found that this population greatly benefits from using person-centered planning approaches to transition, participating in social skills training, and by being included in activities and classes with their typically-developing peers. This review will discuss various models of transition, employment, and social skills training, and will make suggestions for future models.

Keywords: autism spectrum disorder, transition, young adults, employment, education

Growing up on the spectrum: How High-Functioning Young Adults with Autism Transition to Independence

An estimated 50,000 adolescents with autism spectrum disorders turn eighteen every year in the United States, but they are inadequately prepared to engage in autonomous adult lifestyles by the time they graduate high school (Roux, Shattuck, Cooper, Anderson, Wagner, Narendorf, 2013). Studies have shown that young adults with autism have the worst employment outcomes of any group with disabilities; those who do have jobs tend to earn less, work less, and frequently change jobs (Hagner, Kurtz, Cloutier, Arakelian, Brucker, & May, 2012; Roux et al., 2013). A study of 500 high school graduates with autism spectrum disorders (ASDs) by Shattuck, Narendorf, and Cooper (2012) found that within the first two years after high school, only 50% of the graduates had found some postsecondary occupation. In particular, individuals at higher functioning levels, such as those with Asperger Syndrome, have difficulties with interpersonal communication and self-regulatory behaviors, which drastically affects their success in jobs and higher education.

Another source of concern stems from the lack of collaboration between the education systems, disability services, and rehabilitation centers, all of which can provide young adults with the support they need, but are more effective when the services are joined (Certo, Mautz, Smalley, Wade, Luecking, Pumpian, & Batterman, 2003). High-functioning young adults have the potential to succeed in postsecondary occupations such as employment and higher education, and can do so if they receive collaborative support from the various available services. These young adults especially benefit from social skills training and working with personal planning teams to help them acquire the necessary skills they need to transition to independent lifestyles. This paper will take an in-depth look at the unique challenges faced by people with high-functioning autism that contribute to their poor transition into postsecondary occupations, and

will identify types of support that young adults need to have to prepare for transition. Several models of social skills training, employment and education will be discussed, and a transition model, synthesized from these studies, will be proposed for future researchers to test.

An Overview of the Outcomes for People with ASDs

In comparison to the research literature on early diagnosis and intervention for autism spectrum disorder, the amount of research on the quality and quantity of postsecondary experiences for young adults with autism is sorely lacking, which leaves concerned specialists with no information on how to create effective interventions (Roux et al., 2013; Shattuck, Roux, Hudson, Taylor, Maenner, & Trani, 2012),. What little research exists reveals some unfortunate truths; Shattuck et al. (2012)[b] reported that of their sample of 500 high school graduates with ASDs, only 34.7% attended college, and 55.1% held a job within the first six years after graduating. Additionally, more than 50% of high school graduates with ASDs did not participate in any activities, such as employment, volunteer work, and education, in the two years following graduation. Certo et al. (2003) estimate that public school systems spend approximately $250,000 per student with support needs for 19 years of education, yet such a small proportion of these students actually enter the workforce and contribute back to society. In a review of six studies which tracked long-term outcomes of individuals with autism, Howlin (2000) reported extremely variable outcomes for this population in terms of how many were employed, went to college, lived independently, and had generally positive outcomes.

Young adults on the spectrum have considerably variable employment experiences, but they also generally have the worst experiences in comparison to other people with disabilities. A recent study analyzed data about the employment experiences from 452 young adults with ASDs in the US, and compared their outcomes with those of young adults with other disabilities, such

as learning disorders and mental retardation (Roux et al., 2013). These researchers found that only about 50% of their sample of people with autism had ever had a paid job since graduating from high school. Participants who did have jobs were paid less and represented a smaller range of occupations than young adults in other disability groups. On average, people with autism earned $8.10 per hour, while their peers with learning disorders, emotional disorders, or speech/language impairments earned between $11.00-12.00 per hour (Roux et al., 2013). High-functioning individuals tended to have higher rates of employment success; 62% of those with high skills had been employed at least once since graduating from high school, in comparison to 12% of low-skilled participants. Employed youth with autism mainly work in office/administrative jobs, production work, food preparation, janitorial work, and transportation, while their peers with other disorders hold a wider variety of occupations. In general, young adults on the spectrum show lower levels of participation and success in employment than any other disability group.

High-Functioning Autism and its unique challenges

As a spectrum disorder, autism manifests itself differently in every individual, and ranges widely in the severity of symptoms. In general, people with autism experience difficulties communicating with the people around them, understanding social cues, and responding appropriately in social situations, but their functional capabilities vary widely from one end of the spectrum to the other. Approximately 48% of people with ASDs fall within the high severity, low-functioning end of the spectrum (Whitby & Mancil, 2009). They show intense verbal and social deficits, emit repetitive, restricted behaviors, and require a high level of caregiver support (American Psychiatric Association, 2000). In contrast, the remaining 52% include individuals with high-functioning autism (HFA) and Asperger syndrome, a disorder that has been highly

dramatized by popular media and often depicts high-functioning individuals as very intelligent, but socially awkward. These high-functioning individuals typically have better verbal skills, higher IQs, and fewer repetitive behaviors, though they still have difficulty in successfully interacting with others and functioning independently. More specifically, high-functioning people may find it hard to switch between new activities without having some visual reminder, like a pictorial schedule, and they tend to disengage from activities that do not apply to their particular, rigid interests. For example, a young child with HFA might have an intense interest in cars or trains, such that most topics of conversation and activities would involve cars and trains; this child might memorize a book about cars, fill drawing books with sketches of trains, and become very upset if asked to leave an event such as a car show. As a result, they often have difficulty engaging in conversations with others that revolve around topics that they do not find interesting.

Young people with HFA and Asperger syndrome also show considerable variability of symptoms between individuals. An in-depth longitudinal study assessed the social skills, behavioral tendencies, and academic skills of forty individuals within the preschool to high school age range (Church, 2000). For the high school students (five males who had been followed since middle school), the researchers noted a general increase of anxiety, social skill deficits, and obsessive-compulsive tendencies, although the specifics of these domains differed for each individual. Some students were described as oppositional and defiant, while others were more quiet and isolated. They all displayed some compulsive behaviors and obsessive thinking, which could range from endless worrying about illnesses, to licking their fingers. Compulsive behaviors may provide comfort and security to kids on the spectrum, but such behaviors are not acceptable from a societal viewpoint, which hinders these individuals in making social

connections. The respective talents and skills varied widely for these five teenagers; two of them were in advanced placement for physics and computer science, while three were in special education classes. Most of the boys had strong math skills and struggled with English, but two of the boys had exceptional creative writing skills. One student was a gifted artist, and a second was an excellent piano player. Although most of the boys were described as speaking in monotone voices and failing to engage in reciprocal dialogue, all five had great "offbeat" senses of humor.

Church (2000) speculated that society tends to misunderstand this particular population for several reasons. Since HFA and Asperger syndrome in particular have no effects on outward appearance, people tend to be confused by the ways in which high-functioning individuals act socially. Because this population often lacks the ability to pick up on and understand social cues, they often make inappropriate comments or behave in strange ways that make others uncomfortable. These peculiar social skills also confuse people in light of high-functioning individuals' superior talents in areas such as computers or music. Since some individuals are so capable of carrying out complex tasks in their specific areas of interests, people around them often do not understand their poorly-developed social skills. Teenagers with HFA may become more aware of of their difficulties when interacting with fellow students, which can lead to isolation and rejection, particularly in middle and high school years (Tse, Strulovitch, Tagalakis, Meng, & Fombonne, 2007; Church, 2000). In the long term, this pattern of poor peer interactions due to social incompetence can lead to depression, anxiety, and low self-confidence, all of which negatively affect their outcomes in higher education and employment.

This chronic pattern of poor social interactions and experiences hinders high-functioning individuals most from succeeding in school, jobs, and in relationships with their peers. Even though they have less severe symptoms, high-functioning individuals tend to have a much lower

rate of success in such ventures because social communication is such a highly-valued skill, especially in most job contexts (Strickland, Coles, & Southern, 2013). One of the main purposes of the job interview is for the employer to gauge how well the applicant can work with others, which also implicitly measures the applicant's behavioral tendencies and social skills. Unfortunately, because most high-functioning individuals lack the social communication skills to do well in interviews and work well with others, they tend to have high levels of unemployment and job turnover. Additionally, many people with HFA do not get placed in jobs that are appropriate for their skill level and abilities, which causes them to frequently switch jobs. For example, a person with autism would likely find a job in a busy, loud restaurant to be over-stimulating, and would experience great difficulty in shifting between tasks (Baldwin, Costley, & Warren, 2014). However, many high-functioning people do have strong talents and interests (particularly in technology) that would lend themselves to success in careers suited to their individual strengths. As Roux et al. (2013) noted, people with high-functioning autism are capable of having jobs, and often want to work, but their lack of social competence hinders them from long term success.

Why Young Adults with HFA are Unprepared to Transition to Adulthood

Autism researchers indicate insufficient adulthood transition as a mediating variable of the general trend of poor outcomes for young adults with HFA, arguing that teenagers on the spectrum do not receive enough instruction and opportunities to build the life skills needed to transition to independence during the middle school and high school years. Hendricks and Wehman (2009) list the following actions as a part of adulthood transition that most people experience: completing high school, gaining employment or postsecondary education, contributing to a household, participating in a community, and having satisfaction in personal

and social relationships. So few teenagers with autism acquire the social and self-determination skills they need to succeed in these activities while they are still in high school. As a result, the transition period following graduation often causes a great deal of anxiety and frustration for young adults on the spectrum and their families because.

As important as a successful transition experience is for adult outcomes, teenagers on the spectrum struggle to achieve smooth transitions. From a practical perspective, many families simply do not have easy access to the available services, or cannot afford intensive programs (Shattuck et al., 2012)[2]. An internet search for programs for adolescents with autism reveals a myriad of options, ranging from residential and independent living services to internship programs to behavioral treatment; however, most of the services are either too expensive, or located in very few places in the country, making such options unfeasible for many families. Low family income and socioeconomic status correlate with poorer outcomes for young adults on the spectrum, particularly in terms of behavioral skills. As a result of low socioeconomic status, these families must rely on services within the education system to help them, but those services typically end when the student graduates from high school, and they do not receive ongoing support while pursuing higher education or employment.

What many parents may not be aware of are the rights to accommodations in employment and education that federal law has mandated for adults with disabilities through the ADA (Americans with Disabilities Act) and IDEA (Individuals with Disabilities Education Act) laws, and how their children can take advantage of them. Individuals must advocate for themselves in order to receive accommodations given by these laws, unlike in the school system where administrators will immediately set up IEPs (Individualized Education Plants) for students with special needs. Colleges typically have an office on campus where students can get set up with

accommodations such as extended time to take tests, or homework assistance, but it is up to the student to take the initiative to ask for these services (Pinder-Amaker, 2014). Too often, students in need of help do not ask for it, either because of the stigma attached to asking for help, or because they do not know how to advocate for themselves. In both cases, the lack of support leads to less productive outcomes.

Positive post-high school outcomes are associated with family involvement and active participation on the part of the individual with an ASD in planning their transition into adulthood (Field & Hoffman, 2007; Hagner et al., 2012). However, many individuals do not participate in these planning sessions because they lack the ability to communicate their interests and preferences, as well as make decisions and set goals for themselves. Thus, teenagers with autism experience difficulty not only during the process of transitioning, but while trying to plan for their transition as well.

Beneficial Transition Supports for High-Functioning Young Adults

Person-centered planning.

Autism researchers have identified several valuable factors that schools, services, and families should implement when planning for transition. Hendricks and Wehman (2009) suggest that two main goals for successful transition planning include having students lead discussions in the planning meetings in order to actively engage them in the process, and to focus on gaining the skills each student needs to build in order to succeed in future school or work environments. Developmental disability professionals refer to this technique as a person-centered planning approach because it engages the individual by focusing on his or her unique needs, skills, and desires, rather than fitting them into an available service or program. The approach emphasizes the individual's strengths and abilities and helps replace inappropriate behaviors with better

alternatives. Another aspect of person-centered planning is that each planning team is made up of individuals chosen by the student with HFA, which creates a higher level of cooperation and commitment to the goals of the student. Smith, McDougall, & Edelen-Smith, (2006) note that individuals on the spectrum have significantly improved outcomes with the person-centered approach because they voice their preferences and help develop their own plans for the future.

Because of its positive impact on adult outcomes, experts in the area of transition planning for people with developmental disabilities strongly endorse person-centered planning approaches to transition (Pearpoint, Forest, & O'Brien, 2009; Wehman, Everson, & Reid, 2001; Lee & Carter, 2012). In particular, Wehman et al. (2014) support the use of person-centered planning models because they actively engage students in making plans for their futures, connect them with multiple service agencies, and help them gain skills in self-determination, self-advocacy, social pragmatics, and communicating with others. Hendricks and Wehman (2009) suggest that planning teams focus on helping students learn to manage maladaptive behavior in social situations to support effective interactions with others, because success in both work and school domains depends so heavily on the ability of students to communicate with others. Specifically for students seeking employment, researchers suggest that planning teams supply long-term support for employers as well as employees, in addition to helping students identify positions that spark their interests and have the most appropriate settings for the needs of each individual. A study by Menchetti and Garcia (2003) showed that person-centered planning is a viable method for people with disabilities to obtain careers that interest them and that they can succeed in. The support teams for participants in this study consisted of an employment consultant and a professional from either a vocational counseling center or support service, in addition to a family member and the participant. Of their 83 adult participants with various

mental and physical disorders, 72 (87%) found jobs that either matched or resembled their preferred career, tended to work more hours, stay at the job longer, and get paid slightly more than participants whose jobs did not match their preferences. In light of their findings, Menchetti and Garcia (2003) believe that person-centered methods help enhance employment outcomes for individuals with disabilities.

Person-centered planning is also widely used in academic settings. Pearpoint, Forest, and O'Brien (2009) discuss several person-centered strategies to help families and educators create connections between students and their peers. The goal of these strategies is to create a plan to develop curricula, accommodations, and ways to help the student create connections and friendships with their peers, based on the beliefs that all types of students can learn and benefit from being together in a general classroom. The MAPs, or Making Action Plans, method helps families and students identify several factors about the individual student that help guide the planning process. During the meeting, a MAP recorder and process facilitator ask the attendees of the meeting to share their dreams, hopes, and worst fears they have for the student, in addition to brainstorming a list of the student's strengths, needs, interests, and characteristics. PATH (Planning Alternative Tomorrows with Hope) uses a similar process, but works in a backward fashion where the individual and their family identify the dreams and goals of the individual first, and then devise a plan to meet the goals based on their present state. As a result of both types of meetings, the team members pinpoint weak skills sets of the student that they can target for improvement.

Self-determination and social skills training.

A vital skill set that young adults on the spectrum must acquire is self-determination, as autism experts have linked these skills to more successful outcomes for this group (Shattuck,

2012[2]; Wehman, Schall, Carr, Targett, West, & Cifu, 2014; Getzel, & Thoma, 2008; Wehman, Schall, McDonough, Molinelli, Riehle, Ham, & Thiss, 2013). Field and Hoffman (2007) define self-determination as goal-directed, autonomous, self-regulated behavior that enables young adults to take control of their own lives and become successful members of society. The researchers associated self-determination with a variety of other important skills, such as decision-making, problem-solving, and goal-setting skills, which students and employees alike use to complete daily tasks. Teenagers with autism struggle with developing self-determination because of communication deficits, social difficulties, and lack of opportunities to become more independent. Lee and Carter (2012) note that people with HFA in particular struggle with developing self-determination because such skills often are displayed in social contexts. This issue has implications for the use of person-centered planning approaches because individuals must communicate information about themselves to their team members in order to create effective transition plans. Throughout childhood and adolescence, the people around individuals with autism (especially family members) end up making decisions and advocating for them, to the point where these young adults have little say in anything they do. As these teenagers grow older and begin to pursue employment and higher education, self-determination skills become critical to their success because they must start advocating for their own needs; in order to receive accommodations at college or in a job, individuals must self-disclose about their disability and what accommodations they need to be successful, which involves learning about one's disability and how it affects them. In focus groups with 34 college students with disabilities, learning disorders, emotional disorders, and physical impairments, students spoke about the difference self-determination skills made in their college experiences (Getzel & Thoma, 2008). Their responses clearly demonstrated the positive impact self-determination skills

have on postsecondary experiences, particularly in relation to being able to advocate for their own needs and receive accommodations. One important comment that several students made was that they felt that high school did not equip them with the self-determination skills that ended up helping them in college. This comment, coming from students themselves, demonstrates how important self-determination skills are for success in higher education.

Fortunately, person-centered planning teams and parents of high-functioning teenagers can help them develop self-determination in the home by acting as role models and providing them with opportunities to make their own choices, learn from their mistakes, and to receive honest feedback. These suggestions pose a particular challenge to parents because it is hard for them to take a step back and watch their kids struggle, since they have spent so many years doing everything for their children. Field and Hoffman (2007) urge parents to show responsiveness to the changing needs of their kids, and to recognize their growing need for independence as they grow older. Some ways parents might start fostering independence in their children is by allowing them to gradually make more decisions for themselves, even if the decision are as simple as deciding how they want to spend their day. In late adolescence, parents might begin encouraging their teenagers to take on more responsibilities, such as doing their own laundry or preparing a meal for themselves. Field and Hoffman suggest that parents allow their teens to take risks and learn from their mistakes, which is challenging for parents to do because they want to see their kids succeed; however, this gives teenagers space to develop autonomy by expressing their opinions, acting on them, and learning from the experience. The earlier parents can start supporting their children through the process of developing self-determination, the more well-prepared these teens will be when they begin to transition to careers or further education.

Inclusion.

A third concern regards the need for inclusion of teenagers with ASDs into regular school, work, and community activities. High schools and many work environments tend to segregate these teenagers from the larger community in order to provide private instruction or prevent them from distracting others. However, this segregation contributes to low levels of life satisfaction and participation, as well as low self-esteem. In response to this issue, a study by Garcia-Villamisar, Wehman, & Navarro (2002) compared the utility of supported versus sheltered employment support in improving quality of life for adults with autism. Quality of life has been described as a holistic view of an individual's life situation in four major areas: physical wellbeing, cognitive wellbeing, material wellbeing, and social wellbeing (Sinnott-Oswald, Gliner, & Spencer et al., 1991). For people with significant support needs, a higher quality of life also includes a sense of personal control over the environment, and the ability to make decisions. Over a four-year period, 55 young adults with autism participated in either a sheltered or supported job placement. In the sheltered environment, participants worked in segregated jobs with only other disabled employees. Participants in supported environments were each assigned a job coach, and worked individually in different community-based jobs. The researchers used the Quality of Life Survey developed by Sinnott-Oswald et al. (1991) to measure the participants' perceived levels of environmental control, personal change, and community involvement. Those in the supported employment group reported significantly higher levels of quality of life after four years, in comparison to the sheltered employment group. These results support the idea that young adults benefit by being included in regular community activities and by receiving ongoing support and feedback from a supervisor, in comparison to adults who are segregated into groups with other disabled peers and receive little feedback.

Supportive models of skill-building and employment

Since high-functioning individuals tend to struggle with social interaction, it is vital to provide adolescents with opportunities to build social and communication skills. One team of researchers designed a twelve-week social skills training program for teenagers with HFA and Asperger syndrome that helped the participants develop fifteen important social abilities (Tse et al., 2007). Six groups of seven or eight (n = 46) students met for an hour and a half each week with a social worker and psychologist to work on skills such as making eye contact, being polite, starting and maintaining conversations, and making small talk. During the meetings, participants had the opportunity to learn the skill through role playing in pairs. For example, when the topic was on having conversations, participants were instructed to brainstorm topic ideas of mutual interest and to think of questions to build on what their partner said in response. At the beginning and end of the program, parents of the students filled out three scales which measured the student's social responsiveness (including social awareness, communication, and autistic mannerisms) and aberrant behaviors. By the end of the twelve weeks, complete data from 30 of the participants showed significant improvement in overall social responsiveness and problem behaviors, with effect sizes of 0.39 and 0.42, respectively. Several parents noted that the social skills their children learned generalized outside of the program to other contexts, and thirteen students reported that they had most improved at having conversations as a result of the program. Thus, social skills training in focused groups has demonstrated success in helping high-functioning individuals improve communication abilities.

Another source of support for young adults with HFA comes from vocational rehabilitation services (VR). Person-centered planning teams that focus on finding employment for young adults with autism benefit greatly from including staff members from VR services into

their teams. VR assists people with disabilities to find employment, and provides funding for assessments to place them in appropriate jobs. Transition teams can incorporate VR staff such as vocational educators, case managers, and counselors into their team to create a network of support for the individual seeking employment (Schall, 2009). A vocational counselor based in Portland, Oregon, provided more details about the process of finding jobs for clients, mentioning that VR staff receive referrals through public schools and brokerages and have liaison relationships with schools, businesses, and developmental disability services. As part of the process, each client works with a job developer who meets with potential employers to "carve" a job that fits the needs and abilities of the client, and the needs of the business. A job developer will meet with a client to discuss their goals, interests, strengths, and needs in order to match them with employment opportunities. After matching a client with a job, the job developer will assist the client with the interview process, which might include setting appointment times, attending the interview to help the client advocate for their needs, and working with the employer to set up accommodations. Once the client has started working, their job developer will periodically follow up about the job to ask what is going well, what needs improvement, and whether the accommodations need to be revised. Individuals with autism who are more interested in work than in further education should definitely include several VR staff members in their planning team.

In creating transition strategies, autism researchers and planning teams face the challenge of funding the programs they create, as well as helping students move seamlessly from high school to post-graduation plans. The person-centered planning approach calls for a planning team that works with multiple services to help the individual transition and find success in postsecondary occupations, but on the surface it seems that such an endeavor requires more

staffing and more money to adequately support each teenager. Public school systems spend an estimated $15,000 annually per student with disabilities, but students still do not receive adequate support to help them reach their goals, even with this amount of funding. In response to this issue, a team of researchers created a prototypic model of transition from high school to adulthood activities for teenagers with developmental disabilities that did not require more staff or funding to provide a high level of support; they called it the Transition Service Integration Model (Certo et al., 2003). The model was implemented in fourteen school districts throughout California and Maryland, and served 234 students over the course of four years. The researchers based their model on the integration of three primary systems of support typically used by this population: public schools, rehabilitation centers, and developmental disability systems. These three resources on their own do not adequately prepare clients to find or maintain jobs. Rehabilitation centers primarily offer employment assistance with the view that support is temporary, meaning that they do not offer ongoing support to help clients maintain a job once they find one. Rehabilitation also tends to serve people who present less of a challenge in job placement. Developmental disability services (DDS), such as adult group homes and individual case management, tend to support individuals by offering activities based in a separate facility, rather than in the community, and often neglect to help members build skills that will allow them to function independently. Finally, special education programs in public schools typically do not teach students job-related skills to prepare them to leave high school. These services cite lack of funding and need for more staff in order to provide job skill-training and ongoing support.

In response to this key issue, the researchers found that by combining the services and splitting the funding responsibilities and staff members of each system, they reduced the need for more funding and staff, and increased the sense of continuity for high school seniors with

support needs moving from high school into the real world. The effort was made to restructure the services into "an integrated, short-term, one-stop system at the *point of transition*…the final year a young adult with significant support needs is in public school" (Certo et al., 2003). Instead of requiring more funding and staff, the researchers redirected school funds to rehabilitation and developmental disorder services, which were combined into a "hybrid agency." Rehabilitation was primarily focused on employment support, while DDS planned community activities for each individual. The hybrid agency worked together to immerse participating students into community activities and integrated work opportunities, and received funding from the school system to provide educational instruction in these community settings. For each group of participating students, the school system assigned a teacher who worked with the hybrid agency to develop and plan preferred work and community activities for each individual student. The collaboration between the school and the hybrid agency allowed both providers to become very familiar with each student over the course of the year, which prepared them to continue to provide students with ongoing support after their graduation. This type of collaboration followed a basic model of person-centered planning.

The Transition Service Integration Model helped an average of 88% of their 234 participating students experience a seamless transition by implementing planning support from rehabilitation and developmental disability services during their final year of high school, and continuing that support after high school graduation. Between 81% and 100% of students reported that they experienced no disruptions in services between graduation and post-graduation activities, and all graduates left high school with stable schedules of community activities, as well as the necessary skills and support to maintain these activities (e.g. transportation skills). In addition to the main goal of creating a seamless transition experience, the researchers also aimed

to secure employment for each student at the time of graduation, which an average of 63% of students succeeded in doing. In the three-year follow-up, an average of 71% of participants had gained competitive employment. These results differ immensely from the national average of 13% competitive employment two years after high school graduation for most students with disabilities. The other key component was the continued support students received after graduation. Most rehab services hold the view that employment support ends when individuals are placed in a job, when in reality, individuals continue to need support and re-evaluation after job placement. 90% of the students in this study continued to receive support up to three years after graduation. By the end of the four-year project, other local agencies were encouraged to participate once they discovered the success of the funding configuration.

A more recent model of employment, called Project SEARCH, had the primary goal of finding competitive employment for high school students with autism, as only 6% of young adults on the spectrum ever gain competitive jobs (Wehman, Schall, McDonough, Molinelli, Riehle, Ham, & Thiss, 2013). In order to help students gain job-related skills, the researchers rotated the students through a variety of internships at a local hospital throughout senior year of high school. The students started the day with an hour in the classroom for instruction on skills such as dressing and behaving professionally, communicating effectively, creating résumés and practicing interviews, and learning specific job skills. They then spent four hours at their intern jobs, and returned back to school for a forty-five minute wrap-up session. Their supervisor at each internship tracked the students' performance each week and evaluated them on their behavior, communication, appearance, and overall performance, which helped them learn relevant job-related skills.

The staff working on this project utilized a number of strategies to help students improve their performance on the job. Job coaches created structured schedules and visual supports to help students complete their tasks and remember how to react appropriately in response to certain social cues or confusing colloquial phrases. These job coaches also problem-solved with the students to figure out the individualized accommodations they needed. Project SEARCH staff also included a behavior analyst who assisted in identifying challenging behaviors and developing instructive programs to improve those behaviors. One specific technique that both educational staff members and job coaches used was providing students with multiple daily opportunities to practice the social skills they learned in class, which helped students master the skills in a variety of contexts. This model integrated the resources of the school system, developmental disability services, rehabilitation systems, business liaisons, employment services, and students and their families in a collaborative effort to provide behavioral support for the transitioning students. By following this structure, the Project SEARCH staff members created a seamless integration of classroom instruction with on the job training and support which prepared the students with the skills they needed to find and hold a job by the time they graduated from high school.

The aforementioned programs for young adults with autism have demonstrated the utility of the main elements needed for successful job and college transition, which include community inclusion, social skill training, and person-centered planning techniques. Garcia-Villamisar et al. (2002) showed that people with autism benefit on a personal level from working within the community rather than in a segregated workplace. The teenagers with high-functioning autism who participated in a social skills training program by Tse et al. (2007) showed significant improvement in skills such as having conversations and making eye contact, as well as reducing

problematic behaviors. The Transition Service Integration Model (Certo et al., 2003) utilized the person-centered planning approach to engage each individual in creating a transition plan that incorporated their personal interests and coordinated the resources of several different types of available services. Project SEARCH staff helped young adults learn job-related skills and self-determination by placing them in community jobs with individualized accommodations and ongoing support from job coaches. Each of these programs resulted in high levels of success for their participants, as evidenced by the participants' increased perception of life quality, acquisition of job-related skills, and improved behavior on the job.

Application: A Proposed Model for Future Students with HFA

The ideal transition process would start at the beginning of a student's high school career and would involve each student participating in a social skill building program, creating a person-centered transition planning team, and participating in an internship program. The proposed study would use a sample of teenagers diagnosed with either HFA or Asperger syndrome who are about to enter high school. The sample would contain between 50-100 students within a school district, randomly assigned in equal amounts between two treatment groups. To assess the effectiveness of the model, a control group consisting of a similarly-sized group of students from a neighboring school district would participate in a different transition intervention, such as the supported employment model as used by Garcia-Villamisar et al. (2002). The students in this control group would therefore meet ethical standards of the study by receiving services, but they would not receive the main experimental transition intervention.

In order to accurately compare outcomes between intervention groups, the experimental group and control group would be matched on a variety of characteristics. In addition to a diagnosis of high-functioning autism, participants would be matched on level of severity, with

participants falling in either Level 1 severity ("Requiring support") or Level 2 severity ("Requiring substantial support"). Upon intake, all participants will take assessment tests to measure IQ, social and communication skills, and self-care functioning, to ensure that there are no significant differences in functioning that may affect the outcomes of the study. All students should have some history of intervention in their past that lasted at least two years (e.g. ABA therapy in early childhood, occupational therapy, cognitive-behavioral therapy, etc.). Participants should not have other significant medical or mental health conditions. Finally, participants' families will be matched on socioeconomic status, the level of which can vary depending on the school district selected for study. In a lower income school district, all participating families should be in a similar income bracket, while in a higher income district, all families should be in a higher income bracket.

Prior to entering high school, participants and their parents in both treatment groups would fill out several surveys pertaining to the participants' social skills and behaviors, such as the Social Responsiveness Scale and Aberrant Behavior Checklist used by Tse et al. (2007), as well as scales concerning the individual's perceived quality of life and life satisfaction (Quality of Life Questionaire used by Garcia-Villamisar et al., 2002). Other measures would include a self-determination skills checklist, which would assess each individual's self-reported ability to self-advocate, make their own decisions, set goals, and solve problems. Finally, parents would fill out a survey assessing the degree to which the skills their students are obtaining generalize to other contexts, such as home life. The same scales would be filled out at the end of the social skills training course during freshman year, at the end of every school year, and three years after graduation in order to assess changes in each student's growth in these areas as a result of the training, and to determine whether the training had a positive effect in their lives. First year

participating students would take the social skill and self-determination skill training course based on the program developed by Tse et al. (2007), in addition to as many general classes with non-special education students as possible during freshman year.

During sophomore year, students would continue to take general education classes alongside their peers, while working with their IEP team to create their person-centered planning team. By the end of sophomore year, each student should have decided on which staff members from various services (including the school system, developmental disability services, and rehabilitation programs) they want in their team. Teams could also include outside mentors chosen by the student, such as a relative, or a close member of the community, like a leader from recreational center. Students would take the social responsiveness and behavioral checklist tests again to assess their growth. Actual transition planning would begin in junior year, with the goal for the first half of the year to identify the individual's interests and goals (either within an employment or higher education context), and to start building skills to help them be prepared to take on those goals.

The second half of junior year would involve finalizing plans for the internships that would take place senior year. Job coaches would work on developing a job (work with employers, figure out accommodations, etc.), and IEP staff members would help students who prefer to pursue higher education to complete the college application process. Students would continue to master communication, self-determination, behavioral, and job-related skills during their internships senior year, and would once again complete the social responsiveness and problem behavior tests. Similar to Project SEARCH, research staff and planning team members would evaluate each student periodically during their internships on measures of behavioral improvement, self-determination, and skill mastery, in addition to each student completing self-

evaluations on measures of life-satisfaction, quality of life, and perceptions of improvement. For students who want to go to college, senior year would also include visiting college campuses, submitting applications, and deciding on a college.

After graduation, participants would continue to work with their person-centered teams in either employment or education contexts. Three years after graduation, participants would complete the same battery of tests for a final time in order to assess long-term effects of the skills training and implementation of the planning team on their social skills, self-determination skills, and overall life satisfaction. Additionally, participants would assess the degree to which they felt that they experienced a seamless transition to their postsecondary occupation; the assessment would ask questions such as, “Did you feel adequately prepared to succeed in your job/at college?” “Did you feel supported throughout the process?” “Did you continue to receive support after graduating from high school?” Other outcome measures could include reports from members of the person-centered planning team, such as job coaches, teachers, and other community mentors, which would assess each individual’s growth in terms of social skills, maladaptive behaviors, and ability to self-advocate. In comparison to the control group, who mainly experienced job support and community inclusion, the experimental group should show greater improvements in self-advocacy and social skills, in addition to having experienced a seamless transition. This assessment would measure the overall success of the program from both the participants’ point of view, as well as the staff members involved.

Based on the success of the preceding programs on which it is based, the proposed longitudinal study would conceivably yield similar, if not better, results for the participating students. It combines the relative strengths of the four main studies discussed by providing much-needed social skill training, ongoing support through person-centered planning teams,

opportunities to participate in the community and to learn job-related skills, and combines support of the various services available to this population. Outcomes for these individuals would include improved self-determination, communication, and social skills, reduced problem behavior, and perceived seamless transition.

Services for young adults with high-functioning autism have improved significantly in the last few years, but the overall success of this population depends on the collaboration of these services. With so many young adults coming of age each year, it is vital for services to work together to incorporate them into the work force and higher education as valuable members of society. These are people who have the talent, skills, and desire to contribute to society, but tend not to because their social deficits cause them to be misunderstood by others and isolated from their community. Programs that get high-functioning individuals involved with their peers and community benefit not only the individuals, but those who interact with them as well. Support services can teach people with HFA how to communicate and behave appropriately, but these individuals can also teach everyone around them how to become patient and compassionate toward every type of person.

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